AMENDMENTS TO THE SPECIFICATION

Amendments to the specification are listed with additions noted by underlined text and deletions marked by text ~~strikethrough~~ or [[double bracketing.]] The amendments to the specified portions of the specification will replace all previous versions of that portion of the specification. No new matter is introduced by way of the amendments to the specification.

Replacement Paragraph Following 'CROSS REFERENCE TO RELATED APPLICATIONS' on Page 1

Please replace the paragraph following 'CROSS REFERENCE TO RELATED APPLICATIONS' on page 1 with the following replacement paragraph. The amendments to this paragraph have been made to provide patent application serial numbers missing in the priority claim as written.

This application claims the benefit of U.S. Provisional Applications Serial No. 60/220,790, filed Jul. 25, 2000, Serial No. 60/223,644, filed Aug. 8, 2000, Serial No. 60/224,080, filed Aug. 8, 2000, and Serial No. 60/273,383, filed Mar. 5, 2001. Further, the present application is a continuation-in-part of co-pending U.S. Utility applications Ser. No. 09/488,339~~———~~, Attorney Docket No. 17285-28, entitled "Molecular Computer", filed Jan. 20, 2000, and which claims the benefit of U.S. Provisional Application Serial No. 60/116,714, filed Jan. 21, 1999. Still further, the present application is a continuation-in-part of co-pending U.S. Utility application Ser. No. 08/595,130, filed Feb. 1, 1996, which claims priority of U.S. Utility application Ser. No. 08/261,867, filed Jun. 16, 1994, which in turn is a continuation-in-part of U.S. Utility application Ser. No. 07/891,605, filed Jun. 1, 1992. Yet further, the present application is a continuation-in-part of U.S. patent application Ser. No. 09/551,716~~———~~, Attorney Docket Number OCR 1049, filed Apr. 18, 2000, entitled "Molecular Scale Electronic Devices" which claims the benefit U.S. Provisional Applications Serial No. 60/154,716, filed Sep. 20, 1999 and Serial No. 60/157,149, filed Sep. 30, 1999 and U.S. Utility application Ser. No. 09/527,885, filed Mar. 30, 2000. Each of the above-listed Applications is hereby incorporated herein by reference.

Replacement Paragraph Following 'REFERENCE TO CD-ROM APPENDIX AND STATEMENT UNDER 37 C.F.R § 1.52(e)(5)' on Page 1

Please replace the paragraph following 'REFERENCE TO CD-ROM APPENDIX AND STATEMENT UNDER 37 C.F.R. § 1.52(e)(5)' on page 1 with the following replacement paragraph. The trade name MS-Windows has been capitalized in accordance with the requirements of M.P.E.P. 608.01(v).

One compact disk - read only memory (CD-ROM) is attached hereto in duplicate copy ("Copy 1" and "Copy 2") in IBM-PC format, compatible with MS-WINDOWS~~MS-Windows~~ and MS-DOS, and incorporated-by-reference herein, in accordance with 37 C.F.R § 1.52(e)(5). Copy 1 and Copy 2 are identical and contain 269 files in 1 main directory and 2 subdirectories, as identified by the following output from the MS-DOS command "dir e: /s", where the output includes a line in standard format [month/date/year time bytes filename.extension] for each file, identifying, to one of ordinary skill in the computational arts, the date of creation, size, name, and type of each file:

Replacement Paragraph [0032] on Page 15

Please replace paragraph [0032] on page 15 of the specification with the following replacement paragraph. The amendments to this paragraph have been made to provide a missing patent application serial number.

[0032] Still referring to FIG. 1, molecular circuit elements 14 preferably include conjugated molecular segments. The conjugated molecular segments are preferably substituted with groups at the termini that function as molecular alligator clips. Exemplary conjugated molecules that serve as conjugated molecular segments for molecular circuit elements, and exemplary conjugated molecules functionalized with molecular alligator clips are described in: Tour, J. M. "Molecular Electronics. Synthesis and Testing of Components," Accounts of Chemical Research, volume 33, number 11, pages 791-804 (2000); Tour, J. M.; Kozaki, M.; and Seminario, J. M. "Molecular Scale Electronics: A Synthetic/Computational Approach to Digital Computing," J. Am. Chem. Soc. 120, 8486-8493 (1998); Dirk, S. M., et al. "Accoutrements of a molecular computer: switches, memory components and alligator clips," Tetrahedron 57, pp. 5109-5121

(2001), each hereby incorporated herein by reference. Further, molecular circuit components 14 may include any of the molecules, conductive organic material, or conductive paths disclosed in U.S. patent application Ser. No. 09/551,716 Attorney Docket Number OCR 1049, filed Apr. 18, 2000, entitled "Molecular Scale Electronic Devices", which is incorporated by reference herein.

Replacement Paragraph [00148] on Page 54

Please replace paragraph [00148] on page 54 of the specification with the following replacement paragraph. The trade name Windows has been capitalized in accordance with the requirements of M.P.E.P. 608.01(v).

[00148] The SPICE model simulates the complex device circuit properties of a nanocell. We configured SPICE to interface with the genetic algorithm described in the previous section. Using Microsoft's COM platform to interface through OLE to Intusoft's ICAPS/4 WINDOWS~~Windows~~ SPICE variant, a nanocell simulator was developed. Calculations were also performed with HSPICE v. 1999.2 available from Avant. The nanocell simulator randomly generates nanocells and configures them to function as simple logic gates. Given the density and dimensions of the nanoparticles and the average density of the molecular switches, a random nanocell is generated as a hexagonal grid of metallic particles with the specified chosen density. Molecular switches connecting adjacent nanoparticles are distributed following a Poisson distribution based around the given average density (FIG. 7). After the creation of a nanocell, the settings on 20 surrounding input/output pins (five pins occupying each of the four sides) are specified. Each input/output pin can be set to input, output, or to float and thus behave like a nanoparticle. Inside the SPICE engine, individual molecules are modeled using nonlinear resistor circuit elements. Achieving convergence in SPICE was resolved by including the parasitic capacitance expected between the nanoparticles. The added capacitance prevents abrupt changes in the current from occurring during simulations, which more realistically models the nanocell architecture and helps with convergence.